

CLAIMS

WHAT IS CLAIMED IS:

1. A structural reinforcing member for reinforcing a hollow structural member comprising a reinforcing member having on the surface thereof an expandable material that is substantially dry to the touch prior to activation wherein the surface of the reinforcing member is provided with at least one extension adapted for opposing and which approaching an internal surface of the hollow structural member when the reinforcing member is placed within the hollow structural member wherein the expandable material is located against at least one of the one extensions such that the extensions locally guide the expansion of the expandable material.
2. A structural reinforcing member according to Claim 1 in which the exterior profile shape of the reinforcing member conforms substantially to the cross section of the hollow structural member.
3. A structural reinforcing member according to Claim 2 in which the size of the reinforcing member including the expandable material is such that there is a clearance not more than 1 cm between the extremity of the reinforcing member and opposing interior walls of the hollow structural member.
4. A structural reinforcing member according to Claim 1 in which the reinforcing member is an injection molded plastic and has a cellular, honeycomb or ribbed internal structure.
5. A structural reinforcing member according to Claim 1 in which the extensions are selected from ribs, raised embossments or a part of a stamped area.
6. A structural reinforcing member according to Claim 1 which the extensions are of increased thickness relative to adjoining sections of the reinforcing member.
7. A structural reinforcing member according to Claim 1 provided with

small lugs, which enable the structural reinforcing member to stand away from the interior walls of the hollow structural member.

8. A structural reinforcing material according to Claim 3 in which the clearance is 2 to 10 mm.
9. A structural reinforcing member according to Claim 1 in which the reinforcing member is made from filled polyamide.
10. A structural reinforcing member according to Claim 9 in which the filler is glass fibre.
11. A structural reinforcing member according to Claim 9 in which the filler is carbon fibre.
12. A structural reinforcing member according to Claim 1 in which the reinforcing member is made from a thermosetting resin.
13. A structural reinforcing member according to Claim 1 in which the expandable material can be activated to both expand and to act as an adhesive when heated.
14. A structural reinforcing member according to Claim 13 in which the expandable material can be activated at a temperature of a curing step in an electrocoat process.
15. A structural reinforcing member according to Claim 1 in which the expandable material is an expandable adhesive material.
16. A structural reinforcing member according to Claim 15 in which the expandable adhesive material is a foamable epoxy-base resin.
17. A structural reinforcing member according to Claim 1 in which the

expandable material is applied to at least a portion of the surfaces of the rigid reinforcing member that will be adjacent to two non-parallel surfaces of the interior surface of the hollow structural member.

15 18. A structural reinforcing member according to Claim 17 in which the expandable material is applied over part of each of the top and bottom and the sides of the reinforcing member.

10 19. A structural reinforcing according to Claim 1 in which the extensions comprise at least two ribs and the expandable material is provided between the ribs.

15 20. A structural reinforcing member according to Claim 19 in which a series of pairs of ribs are intermittently provided along one or more of the surfaces of the reinforcing member.

21. A structural reinforcing member for reinforcing a hollow structural member comprising:

20 a pair of opposing rib mouldings extending the length of said structural reinforcing member;

unfoamed expansive adhesive material contained between said opposing ribs and said structural reinforcing member;

wherein said unfoamed expansive adhesive material can be activated to both expand and to act as an adhesive when heated;

25 wherein said unfoamed expansive adhesive material is dry and not tacky to the touch prior to activation of said material;

wherein said structural reinforcing member further comprises at least one lug attached to said structural reinforcing member and locating said member within said hollow structural member when said structural reinforcing member is placed within said hollow structural member and said opposing rib mouldings approach an internal surface of the hollow structural member prior to activation of said material; and

wherein said opposing rib mouldings are bonded to said internal surface of said hollow structural member after activation of said material.

22. The structural reinforcing member according to Claim 21 in which the exterior profile shape of said reinforcing member conforms substantially to the interior cross section of said hollow structural member.

5 23. The structural reinforcing member according to Claim 21 in which the size of said reinforcing member including the expandable material is such that there is a clearance of not more than 1 cm between said opposing rib mouldings of said reinforcing member and said interior wall of said hollow structural member.

10 24. The structural reinforcing member according to Claim 21 in which the expandable material can be activated at a temperature of a curing step in an electrocoat process.

15 25. The structural reinforcing material according to Claim 23 in which the clearance is 2 to 10 mm.

20 26. The structural reinforcing member according to Claim 21 in which the reinforcing member is an injection molded plastic and has a cellular, honeycomb or ribbed internal structure.

27. The structural reinforcing member according to Claim 21 in which the reinforcing member is made from filled polyamide.

25 28. The structural reinforcing member according to Claim 27 in which the filler is glass fibre.

29. The structural reinforcing member according to Claim 27 in which the filler is carbon fibre.

30 30. The structural reinforcing member according to Claim 21 in which the reinforcing member is made from a thermosetting resin.

31. The structural reinforcing member according to Claim 21 in which the

expandable adhesive material is an epoxy-base resin.

32. The structural reinforcing member according to Claim 21 in which the
expandable material is applied over part of each of the top and bottom and
5 the sides of the reinforcing member.

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